REMARKS

Claims 1 and 29 have been amended. Claims 1, 4, 5, 16, 18-21, 24, 29-31, 58-60, 65-73, 75 and 76 were rejected under 35 U.S.C. §103(a) over Kondo et al. and Yoshida et al. taken with U.S. Mae et al., Venturoli et al. and Wakabayashi et al. Claim 1, the only independent claim, has been amended to change "microorganisms" to -- nonphotosynthetic bacteria or yeast --. Support for the amendment is found at page 10, lines 17, 18 of the specification. Applicants respectfully submit that amended Claim 1 should be in allowable form.

The invention of independent Claim 1 differs from that suggested by any of the cited references in that the disruption and extraction of the culture of nonphotosynthetic bacteria and yeast are carried out in the condition wherein reduced coenzyme Q_{10} is protected from an oxidation reaction. The claimed invention has the effect of obtaining reduced coenzyme Q_{10} from microorganisms while maintaining an unexpectedly high ratio of the reduced type in the microorganisms.

Yoshida et al. and Kondo et al. disclose culturing the same microorganisms as those of the present invention, so that "microorganisms" containing reduced coenzyme Q_{10} at a ratio of not less than 70 mole % among the entire coenzyme Q_{10} are inherently disclosed. However, it cannot be emphasized too strenuously that the subject matter of the present invention is not a microorganism itself but "a process for producing reduced coenzyme Q_{10} from microorganisms as maintaining high ratio of reduced type in the microorganisms." As the Examiner admits, Yoshida et al. and Kondo et al. do not show that the disruption and extraction are carried out under the condition that the reduced coenzyme Q_{10} is protected from an oxidation reaction. The Examiner argues that it would be obvious to carry out the disruption and extraction under the condition that the reduced coenzyme Q_{10} is protected from an oxidation reaction according to Venturoli et al. and Wakabayashi et al. However, applicants submit that is an incorrect conclusion.

According to the amendment, the invention of Claim 1 is restricted to the process for producing reduced coenzyme Q_{10} by using nonphotosynthetic bacteria or yeast. To the

contrary, Venturoli et al. discloses UQ pool analysis of *Rhodobactor*, which is a photosynthetic bacterium. Applicants submit that Venturoli et al. is improper as a reference for the claimed invention. There is no description in Venturoli et al. that extraction of coenzyme Q_{10} is carried out under the condition that the reduced coenzyme Q_{10} is protected from an oxidation reaction (the Examiner's misunderstanding). Venturoli et al. discloses observation of absorbance changes of carotenoid occurring in cell membrane at 503 nm, which observation is carried out by irradiating two chromatophores (the lyophilized chromatophores and UQ-extracted chromatophores) with light, and reflects results of the electron transfer that is carried out under nitrogen atmosphere. "UQ-extracted" and "quinone-extracted" in Venturoli et al. mean that coenzyme Q has been extracted and eliminated by the previous operation. There is no description of extraction being carried out under a nitrogen atmosphere.

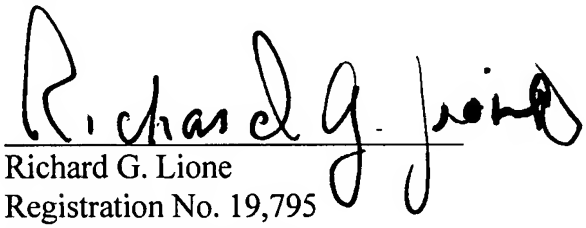
Wakabayashi et al. discloses quantitative analysis of oxidized and reduced coenzyme Q in normal human serum and in rat tissues. Wakabayashi et al. is also improper as a reference related to the present invention drawn to the process for producing reduced coenzyme Q_{10} by using nonphotosynthetic bacteria or yeast. Even though Wakabayashi et al. is cited as a reference, Wakabayashi et al. shows that the ratio of oxidized and reduced coenzyme Q is different between a human and a rat, and that oxidized coenzyme Q_9 is equivalent or more than reduced coenzyme Q_9 in most organs of a rat (coenzyme Q in rat is mainly coenzyme Q_9). Therefore, it would not be obvious for skilled persons in the art to recognize that reduced coenzyme Q_{10} is contained in nonphotosynthetic bacteria or yeast at a ratio of not less than 70 mole % according to Wakabayashi et al.

As explained above, Venturoli et al. and Wakabayashi et al. are simply not proper references supporting obviousness of the claimed invention. Even though they are cited, there is no description or suggestion in these documents that disruption/extraction are carried out under the condition that the reduced coenzyme Q_{10} is protected from an oxidation reaction, and there is no suggestion that reduced coenzyme Q_{10} exists at a ratio of not less than 70 mole % among the entire coenzyme Q_{10} in nonphotosynthetic bacteria and yeast.

Even though availability of reduced coenzyme Q_{10} is described in Mae et al., if skilled persons in the art do not have knowledge that reduced coenzyme Q_{10} is contained in a high ratio in microorganisms, they would plainly not try to obtain (nor would they obtain) reduced coenzyme Q_{10} maintained in the ratio of the invention. Therefore, persons skilled in the art would logically not achieve disruption/extraction of cultured microorganisms carried out under the condition that the reduced coenzyme Q_{10} is protected from an oxidation reaction.

Applicants again emphasize that only after one sees the specification of the present application does it appear obvious to carry out disruption/extraction under the condition that the reduced coenzyme Q_{10} is protected from an oxidation reaction. As such, the invention of Claim 1 (and its dependent children) should be patentable.

Respectfully submitted,



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